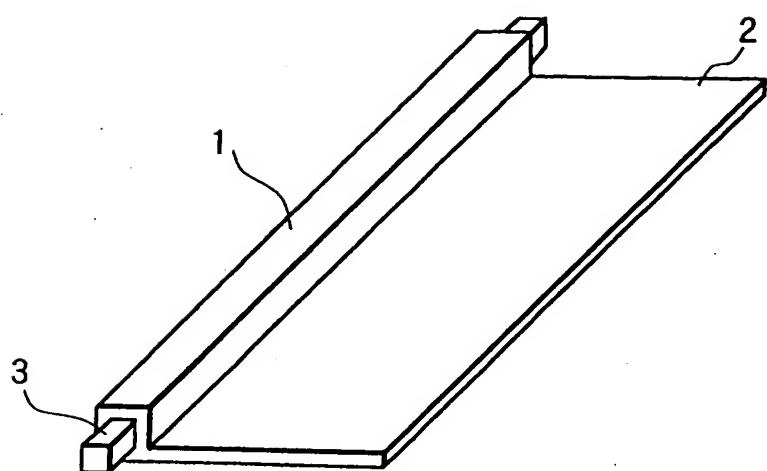
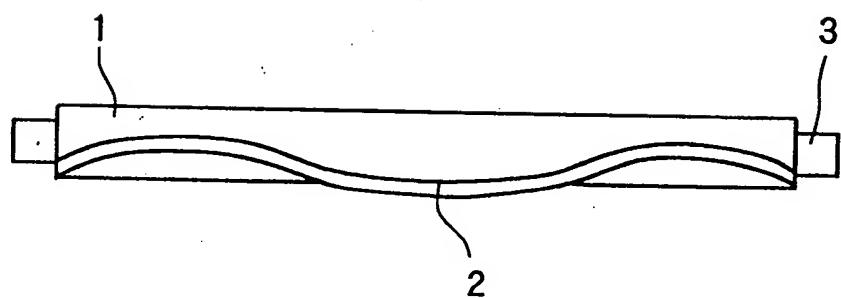


FIG. 1



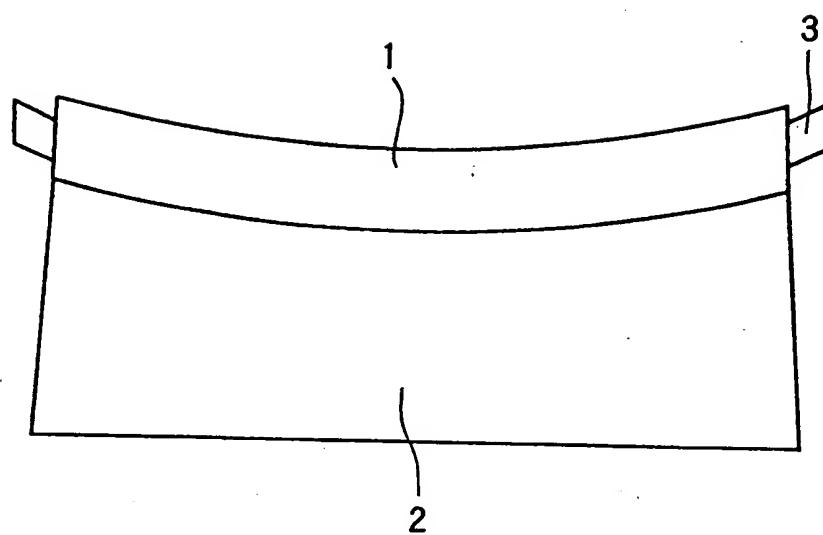
2/21

FIG. 2



3/21

FIG. 3



4/21

FIG. 4

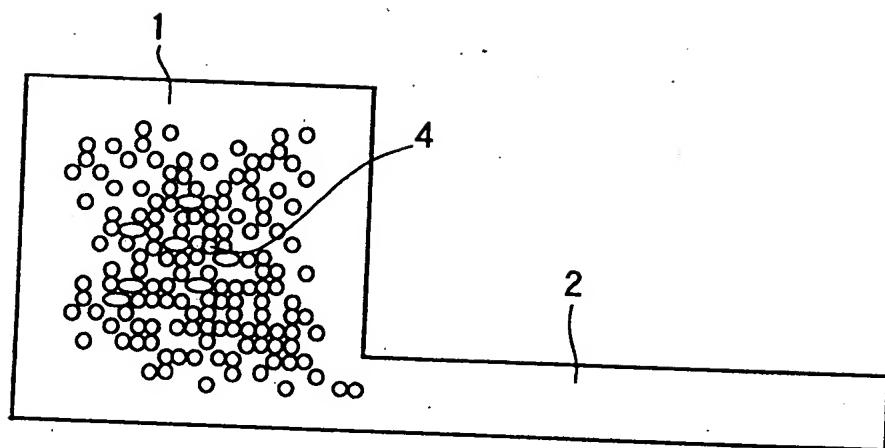
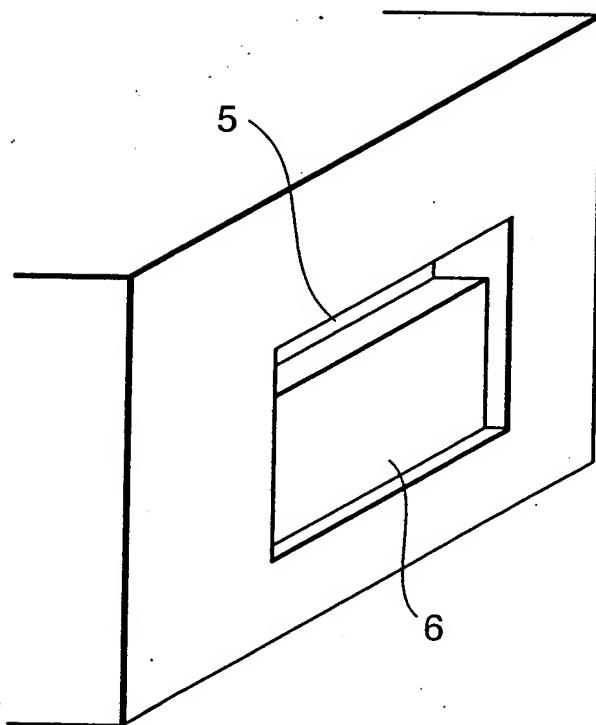
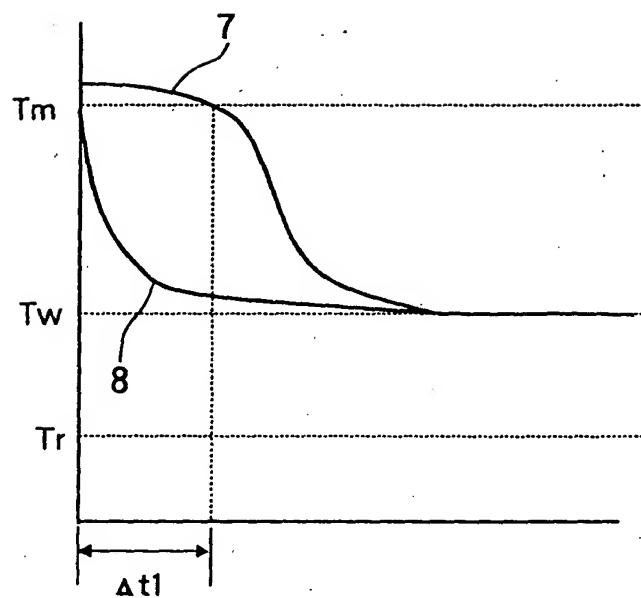


FIG. 5



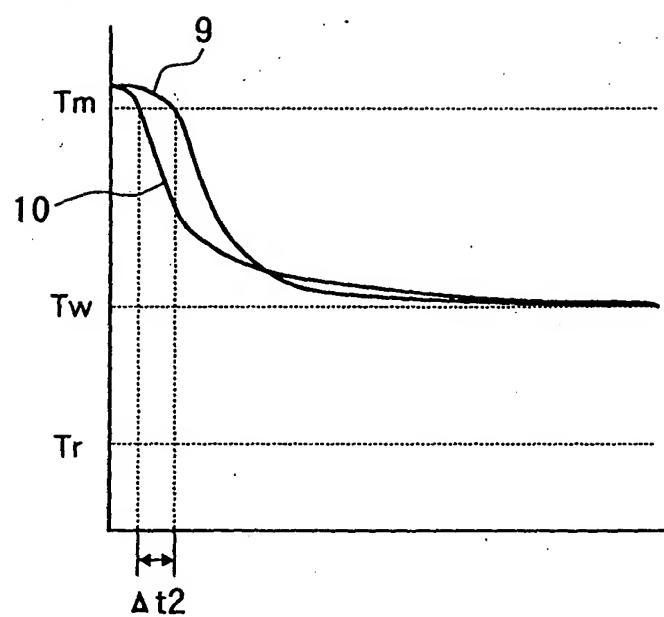
6/21

FIG. 6

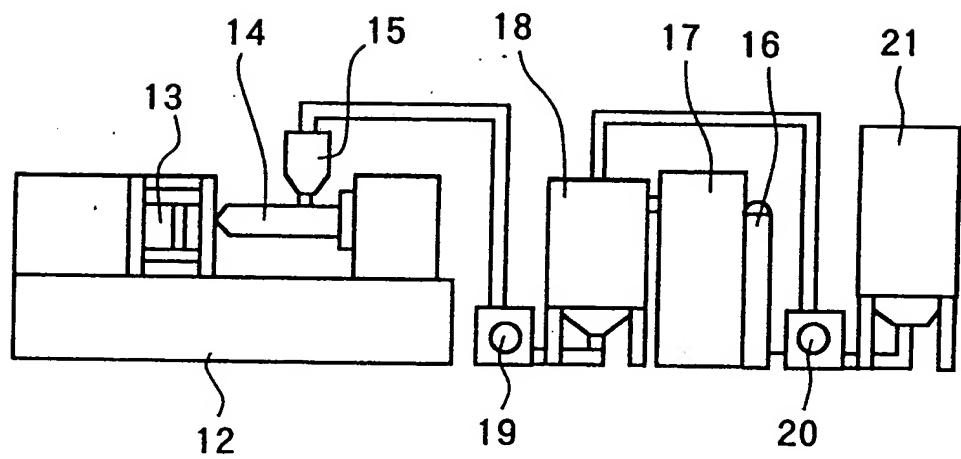


7/21

FIG. 7

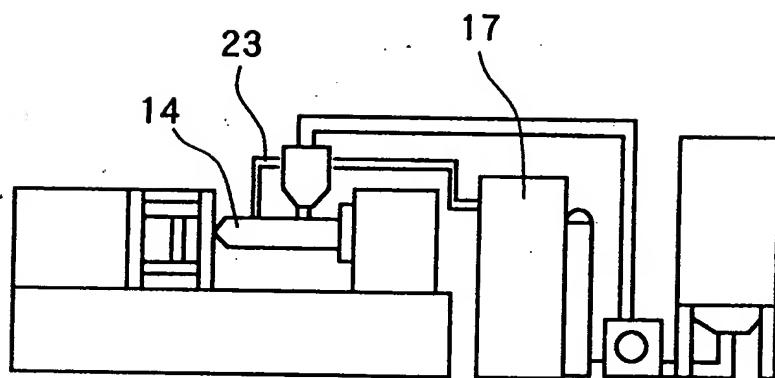


F I G. 8



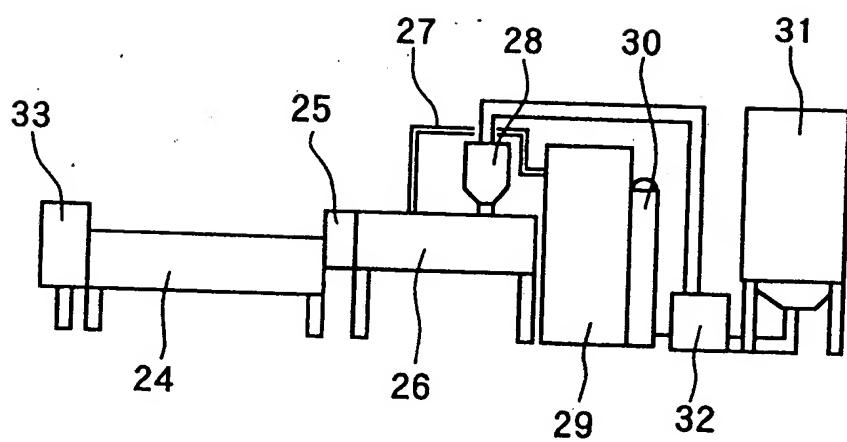
9/21

F I G. 9



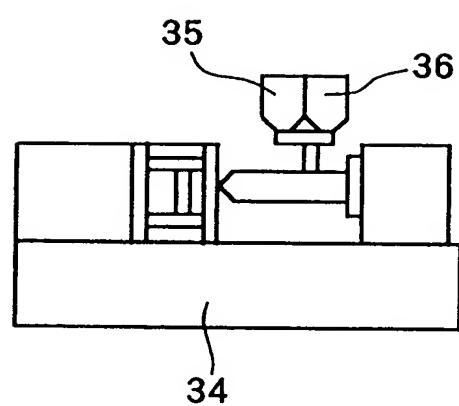
10/21

FIG. 10



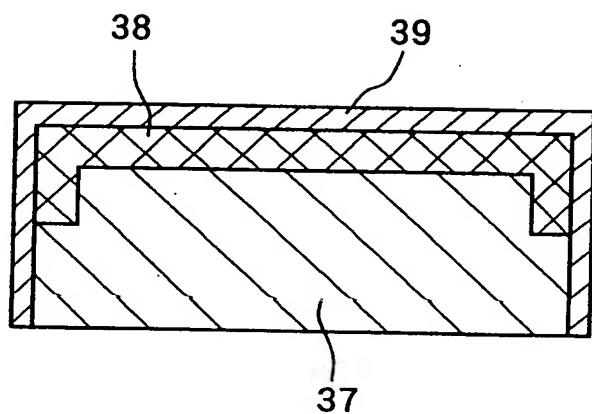
11/21

FIG. 11



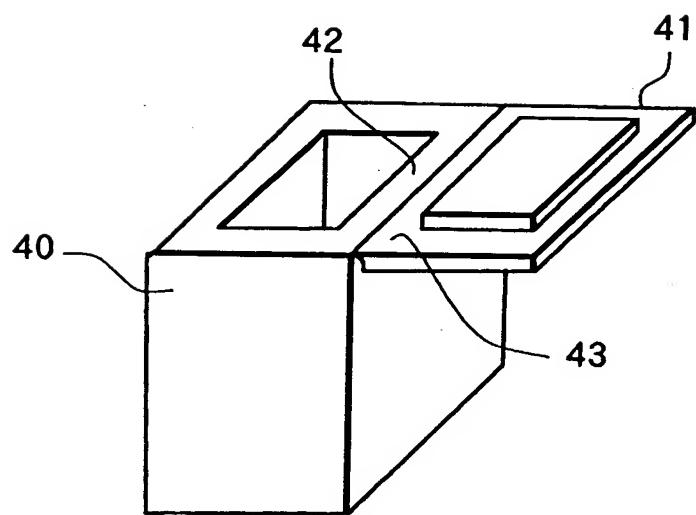
12/21

FIG. 12



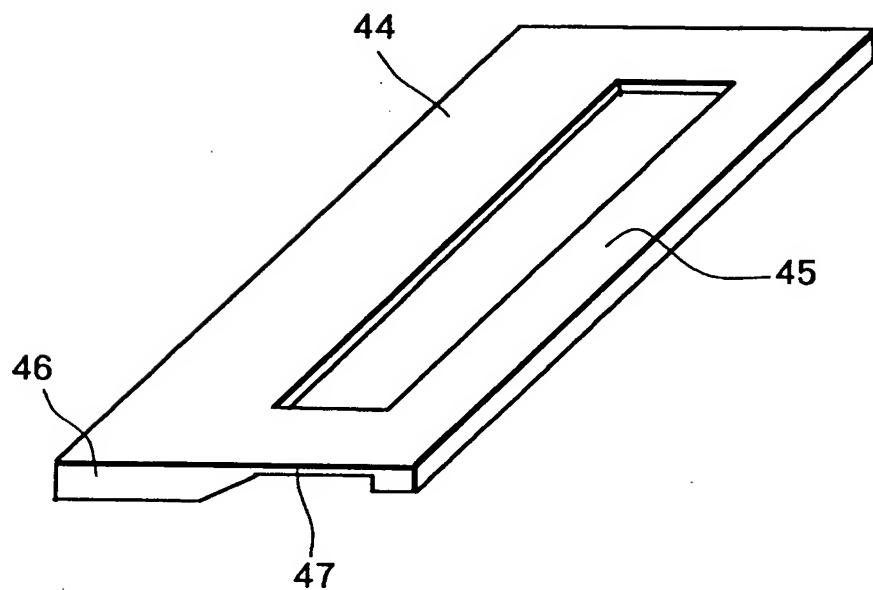
13/21

FIG. 13



14/21

FIG. 14



15/21

F I G. 15

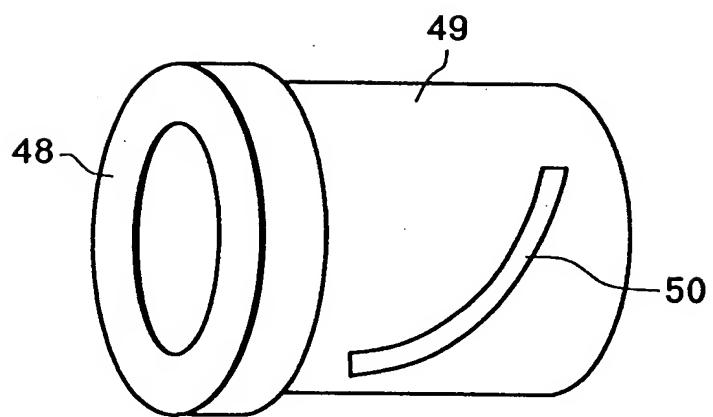


FIG. 16

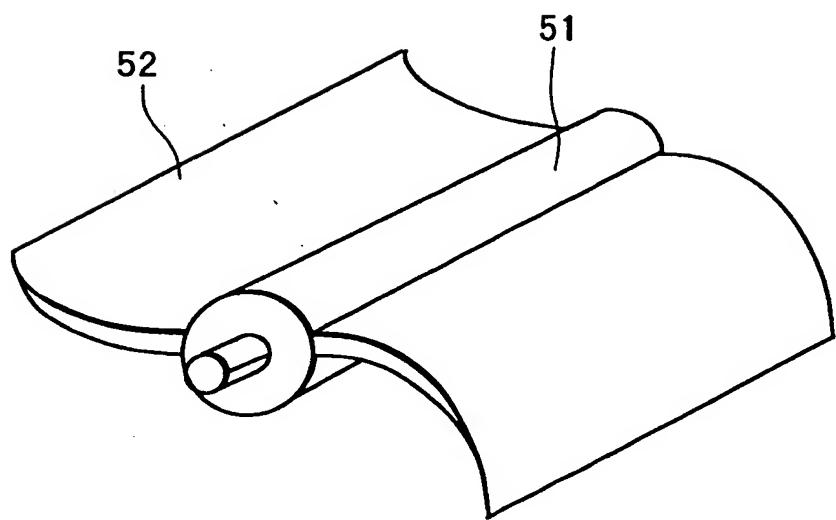
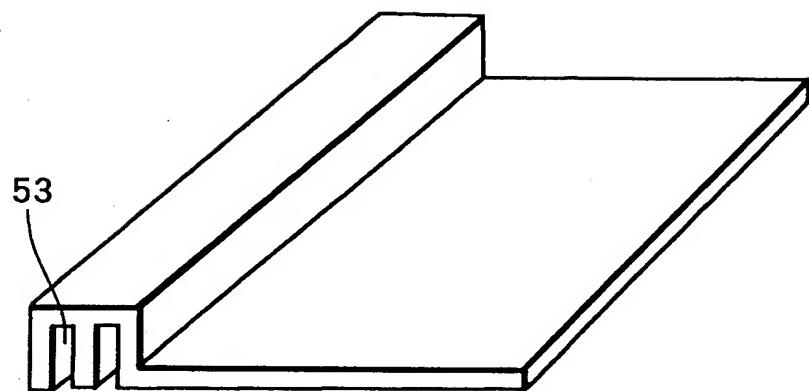


FIG. 17



18/21

FIG. 18

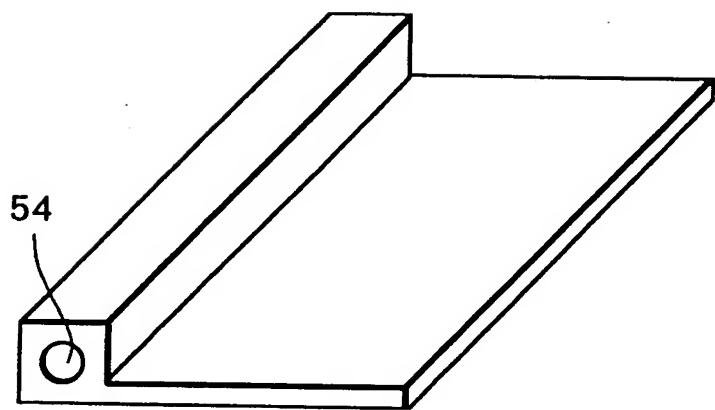


FIG. 19

RESIN MATERIAL	POM	PA6	PC / ABS	HIPS	PPE	ABS
THIN PORTION THICKNESS mm	0.1	0.5	0.5	0.1	1.5	1
THICK PORTION THICKNESS mm	1.5	3	6	3	5	3
CONTROLLED MOLD TEMPERATURE °C	70	90	60	50	40	40
CHARGING TIME sec	0.2	0.3	0.5	0.3	0.8	1
HOLDING PRESSURE Mpa	200	160	160	140	120	80
HOLDING TIME sec	0.5	1	0.1	0.3	1	0.8
THIN PORTION MOLD MATERIAL	CARBON STEEL					
THERMAL CONDUCTIVITY W / m · K	25	25	25	25	25	25
THICK PORTION MOLD MATERIAL	CARBON STEEL					
THERMAL CONDUCTIVITY W / m · K	25	25	25	25	25	25
WARP AMOUNT mm	> 5	> 5	> 2.5	> 2.5	> 2.5	> 2.5

FIG. 20

20/21

RESIN MATERIAL	POM	PA6	PC / ABS	HIPS	PPE	ABS
THIN PORTION THICKNESS mm	0.1	0.5	0.5	0.1	1.5	1
THICK PORTION THICKNESS mm	1.5	3	6	3	5	3
FOAMING MATERIAL	CO ₂	N ₂	N ₂	CO ₂	CO ₂	
CONTROLLED MOLD TEMPERATURE °C	70	90	60	50	40	40
CHARGING TIME sec	0.2	0.3	0.5	0.3	0.8	1
HOLDING PRESSURE Mpa	200	160	160	140	120	80
HOLDING TIME sec	0.5	1	0.1	0.3	1	0.8
THIN PORTION MOLD MATERIAL	CARBON STEEL	CARBON STEEL	CARBON STEEL	CARBON STEEL	CARBON STEEL	CARBON STEEL
Thermal Conductivity W/m · K	25	25	25	25	25	25
THICK PORTION MOLD MATERIAL	CARBON STEEL	CARBON STEEL	CARBON STEEL	CARBON STEEL	CARBON STEEL	CARBON STEEL
Thermal Conductivity W/m · K	25	25	25	25	25	25
WARP AMOUNT mm	1 ~ 2	1 ~ 2	0.8 ~ 1.5	1 ~ 1.5	0.8 ~ 1.3	0.8 ~ 1.3

FIG. 21

RESIN MATERIAL	POM	PA6	PC / ABS	HIPS	PPE	ABS
THIN PORTION THICKNESS mm	0.1	0.5	0.5	0.1	1.5	1
THICK PORTION THICKNESS mm	1.5	3	6	3	5	3
FOAMING MATERIAL	CO ₂	N ₂	N ₂	N ₂	CO ₂	CO ₂
CONTROLLED MOLD TEMPERATURE °C	70	90	60	50	40	40
CHARGING TIME sec	0.2	0.3	0.5	0.3	0.8	1
HOLDING PRESSURE Mpa	200	160	160	140	120	80
HOLDING TIME sec	0.5	1	0.1	0.3	1	0.8
THIN PORTION MOLD MATERIAL	POLYIMIDE	ZIRCONIA	ALUMINA / ZIRCONIA	POLYIMIDE	POROUS METAL	POROUS METAL
Thermal Conductivity W/m · K	0.15	1.4	1.9	0.98	8.5	3.5
THICK PORTION MOLD MATERIAL	COPPER ALLOY	ALUMINUM ALLOY	ALUMINUM ALLOY	COPPER ALLOY	CARBON STEEL	CARBON STEEL
Thermal Conductivity W/m · K	400	150	150	400	55	25
WARP AMOUNT mm	< 0.3	< 0.3	< 0.1	< 0.2	< 0.1	< 0.1